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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/811,342
Filing Date: March 26, 2004
Appellant(s): GRAHAM ET AL.

Michelle E. Kandcer
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 9/5/2007 appealing from the Office action mailed 6/4/2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

7,142,868	Broyles et al.	11-2006

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1-9, 12 and 14-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Broyles et al. (US-7,142,868 hereinafter, Broyles).

Regarding claim 1, Broyles teaches a method for forecasting growth in a wireless telecommunications system, wherein the wireless telecommunications system includes a plurality of system sectors (Fig. 2), the method comprising the steps of:

determining the current system traffic level for the wireless telecommunications system; (Col. 5 lines 37-53 *i.e.* input may take the form of a table per market, indicating **average** values of network traffic capacity demands on each cell site)

determining the current minutes of use (MOU) for the wireless telecommunications system, (Col. 8 line 61 through Col. 9 line 24) the current MOU being the number of minutes used over a given time period; (Col. 4 lines 23-25 *i.e.* 1 hour = 60 minutes)

estimating the future minutes of use (MOU) for a future period of time (Col. 5 lines 62-63 *i.e.* the data is date bound) for the wireless telecommunications system; (Col. 5 lines 37-63, Col. 6 lines 20-36 and Col. 9 [ExpectedTraffic]) and

forecasting the future system traffic level for the wireless telecommunications system based on the current system traffic level, the current MOU and the estimated future MOU. (Col. 4 lines 38-51, Fig. 4, Col. 5 lines 37-63, Col. 6 lines 44-48, and Col. 8 line 61 through Col. 9 line 24)

Regarding claim 2, Broyles teaches allocating the future system traffic level to the plurality of system sectors. (Col. 6 lines 48-52)

Regarding claim 3, Broyles teaches the allocating step allocates the future system traffic level based on the percentage contribution of current system traffic level of the plurality of sectors to the total of the current system traffic level for the wireless telecommunications system. (Col. 6 line 53 through Col. 7 line 3 and Col. 7 lines 17-31)

Regarding claim 4, Broyles teaches the allocating step further comprises determining future equipment requirements for at least one of the plurality of system sectors. (Fig. 5 [510, 512 & 514])

Regarding claim 5, Broyles teaches the step of determining the impact of proposed relief sectors for the system. (Fig. 5 [510, 512 & 514])

Regarding claim 6, Broyles teaches the step of evaluating sector capacities relative to the available spectrum and the balance between coexisting technologies. (Col. 5 lines 54-63)

Regarding claim 7, Broyles teaches the current system traffic level determining step includes determining the average traffic per sector per time period for at least one of the plurality of system sectors. (Col. 5 lines 54-63)

Regarding claim 8, Broyles teaches the MOU in the wireless telecommunications system includes MOU during peak time periods and MOU during non-peak time periods, and wherein the basis for determining future MOU in the future MOU estimating step includes a growth factor for MOU during peak time periods. (Col. 5 line 37 through Col. 7 line 31)

Regarding claim 9, Broyles teaches the growth factor includes a ratio of an individual sector busy hour (ISBH) erlang growth factor to an MOU growth factor. (Col. 5 lines 54-63)

Regarding claim 12, Broyles teaches the future MOU estimating step includes estimating the number of future subscribers for the wireless telecommunications system. (Col. 5 lines 54-66)

Regarding claim 14, Broyles teaches the method further comprises forecasting growth in a wireless telecommunications system that uses a plurality of wireless transmission technologies, wherein the current system traffic level determining step, the current MOU determining step, the future MOU estimating step and the forecasting step all are performed for at least one of the plurality of wireless transmission technologies. (Col. 5 lines 37-63, Col. 6 lines 44 through Col. 9 line 24)

Regarding claim 15, Broyles teaches the plurality of wireless transmission technologies includes AMPS, IS-136, TDMA, GSM and CDMA. (Col. 1 lines 12-20)

Regarding claim 16, Broyles teaches forecasting growth in the wireless telecommunications system for a first time period, wherein the future MOU estimating step further comprises determining future MOU for the first time period, and wherein the future data traffic level forecasting step further comprises forecasting future system traffic level based on the future MOU for the first time period, the current data traffic and the current MOU. (Col. 5 line 37 through Col. 9 line 24)

Regarding claim 17, the limitations of claim 17 are rejected as being the same reason set forth above in claim 1, which includes a computer (Col. 2 lines 15-18) for

forecasting growth in the wireless telecommunications system. (Col. 4 line 52 through Col. 9 line 24)

Regarding claim 18, the limitations of claim 18 are rejected as being the same reasons set forth above in claim 2.

Regarding claim 19, the limitations of claim 19 are rejected as being the same reasons set forth above in claims 3 and 4.

Regarding claim 20, the limitations of claim 20 are rejected as being the same reasons set forth above in claim 5.

Regarding claim 21, the limitations of claim 21 are rejected as being the same reasons set forth above in claim 6.

Regarding claim 22, the limitations of claim 22 are rejected as being the same reasons set forth above in claims 1 and 17.

Regarding claim 23, the limitations of claim 23 are rejected as being the same reasons set forth above in claims 2 and 18.

Regarding claim 24, the limitations of claim 24 are rejected as being the same reasons set forth above in claims 5 and 20.

Regarding claim 25, the limitations of claim 25 are rejected as being the same reasons set forth above in claims 6 and 21.

Regarding claim 26, the limitations of claim 26 are rejected as being the same reasons set forth above in claim 1, 17 and 22.

Regarding claim 27, the limitations of claim 27 are rejected as being the same reasons set forth above in claim 2.

Regarding claim 28, the limitations of claim 28 are rejected as being the same reasons set forth above in claim 4.

Regarding claim 29, the limitations of claim 29 are rejected as being the same reasons set forth above in claim 5.

Regarding claim 30, the limitations of claim 30 are rejected as being the same reasons set forth above in claim 6.

2. Claims 10, 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Broyles.

Regarding claim 10, Broyles teaches estimating the future MOU. (Col. 5 lines 54-63 and Col. 8 line 61 through Col. 9 line 24) Broyles differs from the claimed invention by not explicitly reciting determining the future MOU to include a buffer amount. However, it is obvious to one of ordinary skill in the art that Broyles teaches the future MOU includes an MOU buffer amount since Broyles teaches determining traffic amounts during high traffic periods. (Col. 5 lines 37-63)

Regarding claim 11, Broyles teaches determining the expected future network inputs that includes how many subscribers are in a market. (Col. 5 lines 54-63) Broyles differs from the claimed invention by not explicitly reciting determining the number of current subscribers for the wireless telecommunications system. However, it is obvious to one of ordinary skill in the art that Broyles has to teach determining the current number of subscribers in order to extrapolate the estimated future number of subscribers. (Col. 5 lines 54-66)

Regarding claim 13, Broyles teaches estimating the number of future subscribers for the wireless telecommunications system. (Col. 5 lines 54-63) Broyles differs from the claimed invention by not explicitly reciting including a subscriber buffer amount in estimating the future number of subscribers. However, it is obvious to one of ordinary skill in the art that Broyles teaches including a buffer amount since Broyles considers determining the traffic during peak time which is higher than the average traffic. (Col. 5 lines 37-63)

(10) Response to Argument

In response to the appellant's argument that *Broyles et al. simply does not disclose, teach or suggest using two different metrics to forecast the future traffic level, as claimed independent claims 1, 17, 22 and 26* (Pages 6-7), the examiner disagrees.

Broyles teaches a method and system for predicting traffic growth in a wireless communication network. (Col. 1 lines 8-10) Broyles teachings include the flexibility of using multiple metrics for determining the "current network inputs 302". (Col. 5 lines 37-41) The appellant states the "system traffic level is a "snapshot" of the system traffic at a particular time (or duration of time), which correlates with the average values in Broyles' teaching of a "current network input" that "may take the form of a table per market, indicating average values of network traffic capacity demands on each cell site" (Col. 5 lines 49-51) and "snapshot" correlates with the "amount of current sector traffic or current cell site traffic". (Col. 5 lines 41-44)

Broyles teaches determining the current minutes of use (MOU) for the wireless telecommunications system which through the statements "Erlang traffic during a cell site high traffic time period" and "throughput traffic, and other traffic inputs". (Col. 5 lines 44-47) Broyles teaches an Erlang is a "measurement of telephone conversation traffic where one Erlang is equal to one full hour of conversation". (Col. 4 lines 23-25) Although the Erlang values seen within Broyles are scaled to hours instead of minutes, one of ordinary skill in the art would recognize the scaling factor is 60 to change from hours to minutes.

Broyles teaches estimating the future minutes of use (MOU) for a future period of time (Col. 5 lines 62-63 *i.e.* the data is date bound) for the wireless telecommunications system. (Col. 5 lines 37-63, Col. 6 lines 20-36 and Col. 9 [ExpectedTraffic]) Broyles teaches this limitation as "expected future network inputs 304" can be determined from network forecasts or estimations which include" "total Erlangs", (Col. 5 lines 55-63), with an Erlang being a "measurement of telephone conversation traffic where one Erlang is equal to one full hour of conversation". (Col. 4 lines 23-25)

Broyles teaches forecasting the future system traffic level for the wireless telecommunications system based on the current system traffic level, the current MOU and the estimated future MOU. (Col. 4 lines 38-51, Fig. 4, Col. 5 lines 37-63, Col. 6 lines 44-48, and Col. 8 line 61 through Col. 9 line 24) Broyles teaches this limitation as "after inputting the current and expected future network information, a user of the computer 306 then selects a future date" "to observe the effects of the inputs on the current network at the future date". (Col. 6 lines 20-36)

As a separate argument, but as further proof that Broyles teaches the limitations of claims 1, 17, 22 and 26, the examiner would like to explain mathematically and through examples, how the "minutes of use" is used to calculate an Erlang. As one of ordinary skill in the art would recognize, an Erlang is a measurement of telephone traffic or volume. One Erlang is equal to one full hour of a communication line in use (*i.e.* a conversation lasting one hour). (Col. 4 lines 23-25) As one of ordinary skill in the art would realize, a simple conversion between minutes and hours is readily available. (60 minutes = 1 hour) For comparisons in calculating Erlang traffic, the examiner would like to present the following examples:

Example A

- If a single phone line is used for 15 minutes in one hour, the phone line has 0.25 Erlangs of traffic. (*i.e.* the phone is idle for 75% of the hour or alternatively, in use for 25% of the hour)

Example B

- If two phone lines have been used for a total of 120 minutes in one hour, the combined phone lines have 2 Erlangs of traffic. (*i.e.* both phones are in use 100% of the hour)

Example C

- If two phone lines have been used for a total of 60 minutes in one hour, the combined phone lines have 1 Erlang of traffic. (*i.e.* both phones are idle 50% of the hour)

Example D

- If a base station fields 100 calls in an hour, each call lasting 3 minutes, then the traffic in Erlangs would equal: (number of calls) * (duration of calls [in hours])
- (100 calls) * (3 minutes) = 300 minutes of traffic in the hour of measurement
- (300 minutes of traffic) / (60 minutes per hour) = 5 hours of traffic in the hour of measurement
- 5 hours of traffic = 5 Erlangs of traffic for the base station

With that being said, when Broyles teaches the use of Erlang traffic, the minutes of use (in the previous example D, 300 minutes of traffic) must be determined in order to calculate the value of Erlang traffic. The examiner is not aware of a meter to determine the Erlang traffic for a base station without first determining the minutes of use at the base station. Since the examiner has shown the "minutes of use (MOU)" is calculated in the Erlang traffic value and the Appellant readily admits the "Erlang traffic" disclosed within Broyles can equate to the "system traffic" (Paragraph spanning Pages 6-7), the examiner is not "straining credibility" but rather reinforcing the fact that the Erlang traffic includes both the "system traffic" and the "minutes of use (MOU)" metrics as claimed by the Appellant.

For the reasons listed above, the original rejections regarding claims 2-7, 15, 18-21, 23-25 and 27-30 are maintained.

In response to the appellant's argument regarding claim 8 that *Broyles does not disclose, teach or suggest, "wherein the MOU in the wireless telecommunications system includes MOU during peak time periods and MOU during non-peak time periods, and wherein the basis for determining future MOU in the future MOU estimating step includes a growth factor for MOU during peak time periods"* (Page 8), the examiner disagrees.

Broyles teaches the MOU during peak time periods (Col. 5 lines 44-47 and Col. 8 lines 1-3) and MOU during non-peak time periods (Col. 5 line 47), and wherein the basis for determining future MOU (Col. 5 lines 54-63) in the future MOU estimating step includes a growth factor (Col. 7 lines 32-61) for MOU during peak time periods. (Col. 8 lines 15-60)

In response to the appellant's argument regarding claim 9 that *Broyles does not disclose, teach, or suggest, "wherein the growth factor includes a ratio of an individual sector busy hour (ISBH) erlang growth factor to an MOU growth factor"* (Page 9), the examiner disagrees.

Broyles teaches the growth factor includes a ratio of an individual sector busy hour Erlang growth factor to a MOU growth factor. (Col. 5 lines 58-63 *i.e.* total Erlangs used per subscriber during busy hour and others)

In response to the appellant's argument regarding claim 12 that *Broyles does not disclose, teach or suggest, "wherein the future MOU estimating step includes estimating*

the number of future subscribers for the wireless telecommunications system" (Pages 8-9), the examiner disagrees.

Broyles teaches the "Expected future network inputs 304 can be determined from network forecasts or estimations which include: (i) how many subscribers are in a market". (Col. 5 lines 55-58)

In response to the appellant's argument regarding claim 14 that *Broyles does not disclose, teach or suggest, "wherein the method further comprises forecasting growth in a wireless telecommunications system that uses a plurality of wireless transmission technologies, wherein the current system traffic level determining step, the current MOU determining step, the future MOU estimating step and the forecasting step all are performed for at least one of the plurality of wireless transmission technologies"* (Page 14), the examiner disagrees.

Broyles teaches the method further comprises forecasting growth in a wireless telecommunications system that uses a plurality of wireless transmission technologies (Col. 5 lines 59-62), wherein the current system traffic level determining step, the current MOU determining step, the future MOU estimating step and the forecasting step all are performed for at least one of the plurality of wireless transmission technologies. (Col. 5 lines 37-63, Col. 9 lines 25-42 and Col. 11 lines 45-56)

In response to the appellant's argument regarding claim 16 that *Broyles does not disclose, teach, or suggest, "wherein the method further comprises forecasting growth*

in the wireless telecommunications system for a first time period, wherein the future MOU estimating step further comprises determining future MOU for the first time period, and wherein the future data traffic level forecasting step further comprises forecasting future system traffic level based on the future MOU for the first time period, the current data traffic and the current MOU" (Pages 9-10), the examiner disagrees.

Broyles teaches forecasting growth in the wireless telecommunications system for a first time period (Col. 5 lines 54-63 "all of which are date bound" and Col. 6 lines 29-30), wherein the future MOU estimating step further comprises determining future MOU for the first time period (Col. 5 lines 58-59), and wherein the future data traffic level forecasting step further comprises forecasting future system traffic level based on the future MOU for the first time period, the current data traffic and the current MOU. (Col. 6 lines 29-36)

In response to the appellant's argument regarding claim 10 that *Broyles does not disclose, teach or suggest, "wherein the future MOU estimating step further comprises estimating the future MOU in such a way that the resulting MOU estimation includes an MOU buffer amount"* (Page 10), the examiner disagrees.

Regarding claim 10, Broyles teaches estimating the future MOU. (Col. 5 lines 54-63 and Col. 8 line 61 through Col. 9 line 24) Broyles differs from the claimed invention by not explicitly reciting determining the future MOU to include a buffer amount. However, Broyles teaches the future MOU includes an MOU buffer amount since Broyles teaches determining traffic amounts during high traffic periods (Col. 5

lines 37-63) and as one of ordinary skill in the art would realize the base station must be designed to support at least the amount of traffic during the high traffic period with an additional amount of capacity to enable growth in the network, depending on the expected and unexpected growth. (Col. 6 lines 1-10 *i.e.* buffer)

In response to the appellant's argument regarding claim 11 that *Broyles does not disclose, teach, or suggest, "wherein at least one of the current system traffic level determining step and the current MOU determining step includes determining the number of current subscribers for the wireless telecommunications system"* (Page 11), the examiner disagrees.

Broyles teaches determining the expected future network inputs that includes how many subscribers are in a market. (Col. 5 lines 54-63) Broyles differs from the claimed invention by not explicitly reciting determining the number of current subscribers for the wireless telecommunications system. However, it is obvious to one of ordinary skill in the art that Broyles has to teach determining the current number of subscribers in order to extrapolate the estimated future number of subscribers. (Col. 5 lines 54-66)

In response to the appellant's argument regarding claim 13 that *Broyles does not disclose, teach, or suggest, "wherein estimating the number of future subscribers for the wireless telecommunications system includes estimating the number of future*

subscribers in such a way that the resulting number of future subscribers includes a subscriber buffer amount" (Page 11), the examiner disagrees.

Broyles teaches estimating the number of future subscribers for the wireless telecommunications system. (Col. 5 lines 54-63) Broyles differs from the claimed invention by not explicitly reciting including a subscriber buffer amount in estimating the future number of subscribers. However, Broyles teaches including a buffer amount since Broyles considers determining the traffic during peak time which is higher than the average traffic (Col. 5 lines 37-63) and as one of ordinary skill in the art would realize the base station must be designed to support at least the amount of traffic during the high traffic period with an additional amount of capacity to enable growth in the network, depending on the expected and unexpected growth. (Col. 6 lines 1-10 *i.e.* buffer)

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Matthew C. Sams
9/26/2007

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